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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.              | CONFIRMATION NO. |
|---|-------------|----------------------|----------------------------------|------------------|
| 10/014,506  | 12/14/2001  | Masayuki Murakami    | Q66577                           | 3596             |
| 7590 12/15/2004   |             |                      |                                  |                  |
| SUGHRUE, MION, ZINN,<br>MACPEAK & SEAS, PLLC<br>2100 Pennsylvania Avenue, N.W.<br>Washington, DC 20037-3202 |             |                      | EXAMINER<br>LAVIN, CHRISTOPHER L |                  |
|   |             |                      | ART UNIT<br>2621                 | PAPER NUMBER     |

DATE MAILED: 12/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/014,506

Applicant(s)

MURAKAMI, MASAYUKI

Examiner

Christopher L Lavin

Art Unit

2621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 14 December 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1 - 12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 - 12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. Claims 1 – 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeo (6,075,877) in view of Hiyama (6,269,379).

5. In regards to claim 1, Takeo discloses in lines 39 – 67 of column 12 an image data handling method for generating energy subtraction images from high-energy and low-energy images. The method disclosed by Takeo must have some way of identifying the image files in order to work. The information that would be required in some fashion about these images is identifying an image as high or low energy, a link between pairs (indicating that the low-energy data set belongs to the same combination as the high-

energy image data set), and a link between a pair and the resultant image. These links constitute combination information. The information listed above is necessary for the method disclosed by Takeo to work; Takeo, however, does not disclose how this information is stored or how the links are established.

6. Hiyama teaches of storing attribute information and links to files (through use of pointers) in the paragraph starting at column 6, line 66. Figure 2 shows an example of some of the information stored with an image. This stored information is for medical images. It would be obvious to change this information to correspond to the information needed for the method disclosed by Takeo.

7. Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to use linking and data attributes as disclosed by Hiyama to implement the needed file management system for the method disclosed by Takeo. By linking the files together and storing attribute information about the files the method disclosed by Takeo will be able to handle multiple groupings of files and store the results, along with the associated data.

8. In regards to claim 2, as discussed above in the rejection of claim 4 the apparatus disclosed by Takeo in view of Hiyama requires a link between the energy subtraction image and the two input images in order to store the results, this link goes both ways. Hiyama discloses the means to manage this information.

9. In regards to claim 3, Takeo discloses in lines 39 – 67 in column 12 an image data handling method for generating energy subtraction images from high-energy and low-energy images. Takeo states “the first X-ray image signal  $SO_1$ , which represents the

first X-ray image having been recorded with the X-rays having a comparatively low energy level". Takeo must have some way of identifying the low-energy image from the high-energy image. The method disclosed by Takeo must have some way of identifying the image files in order to work. The information that would be required in some fashion about these images is identifying an image as high or low energy, a link between pairs and a link between a pair and the resultant image. These links constitute combination information. The information listed above is necessary for the method disclosed by Takeo to work; Takeo, however, does not disclose how this information is stored or how the links are established.

10. Hiyama teaches of storing attribute information and links to files (through use of pointers) in the paragraph starting at column 6, line 66. Figure 2 shows an example of some of the information stored with an image. This stored information is for medical images. It would be obvious to change this information to correspond to the information needed for the method disclosed by Takeo.

11. Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to use linking and data attributes as disclosed by Hiyama to implement the needed file management system for the method disclosed by Takeo. By linking the files together and storing attribute information about the files the method disclosed by Takeo will be able to handle multiple groupings of files and store the results, along with the associated data.

12. In regards to claim 4, claim 4 is the apparatus claim of claim 1. Please see the rejection of claim 1 for the reasons for rejection of claim 4. It is further noted that Takeo discloses an energy subtraction apparatus in figure 5.

13. In regards to claim 5, Takeo discloses that "the first X-ray image signal  $SO_1$ , which represents the first X-ray image having been recorded with the X-rays having a comparatively low energy level". Takeo must have some way of identifying the low-energy image from the high-energy image. As disclosed in the rejection of claim 4, Hiyama teaches in column 2, line 32 an approach to storing the attribute information needed to identify the low and high-energy images from each other.

14. In regards to claims 6/4 and 6/5, as discussed above in the rejection of claim 4 the apparatus disclosed by Takeo in view of Hiyama requires a link between the energy subtraction image and the two input images in order to store the results, this link goes both ways. Hiyama discloses the means to manage this information.

15. In regards to claim 7, as discussed above in the rejection of claim 4 the apparatus disclosed by Takeo in view of Hiyama requires a link between the energy subtraction image and the two input images in order to store the results, this link goes both ways. Hiyama discloses the means to manage this information.

16. In regards to claim 8, as shown in the rejection of claim 4 Takeo discloses an information addition means. Hiyama teaches of storing information in a hierarchy in the paragraph starting at column 12, line 30. Hiyama discloses the patient as the highest level, then the examination, and finally exam images.

17. In regards to claims 9/8 and 9/7, Takeo discloses in lines 44 – 46, column 10 that a CRT is used to display an “image signal”. This image signal is either the high or low energy image. Then in the paragraph starting at column 11, line 56 Takeo discloses that the results (energy subtraction image) are displayed on the CRT. As shown previously Takeo in view of Hiyama discloses a means to store the images in a file system. Takeo however does not disclose a switching means.

18. Hiyama teaches in first two paragraphs in column 11, starting at line 1 and illustrated in figure 9 a switching means which shows multiple images to select. “This selection is achieved by moving the mouse to the item of each intended image file.”

19. Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to include the switching means disclosed by Hiyama to the apparatus disclosed by Takeo in view of Hiyama. Allowing a doctor to switch between images can help with diagnosis.

20. In regards to claims 10/9/8 and 10/9/7, Takeo discloses in Figure 5, item 44 and further described in lines 63 – 67, column 12 an energy subtraction processing means. Takeo discloses a subtraction parameter changing means in Figure 5, item 43' with further explanation in the paragraph starting at column 8, line 54. “An input means 41 for inputting information representing a body thickness  $t$  of an object, and a storage means 42 for storing information representing predetermined parameters.”

21. In regards to claims 11/9/8 and 11/9/7, Takeo discloses in Figure 5, item 36 and further described in the paragraph starting at column 12, line 7 an image processing means. Takeo discloses an image processing parameter changing means in Figure 5,

item 43' with further explanation in the paragraph starting at column 8, line 54. "An input means 41 for inputting information representing a body thickness  $t$  of an object, and a storage means 42 for storing information representing predetermined parameters."

22. In regards to claim 12, claim 12 is the apparatus claim of claim 3. Please see the rejection of claim 3 for the reasons for rejection of claim 12. It is further noted that Takeo discloses an energy subtraction apparatus in figure 5.

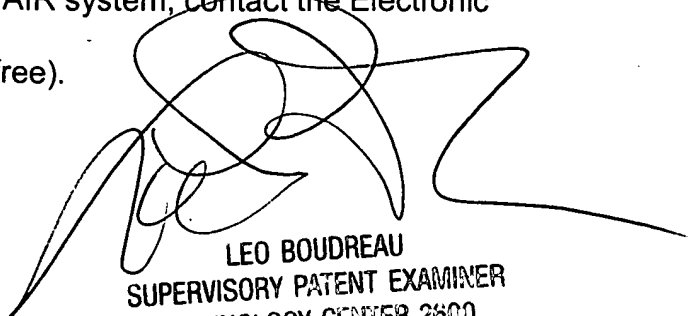
### **Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher L Lavin whose telephone number is 703-306-4220. The examiner can normally be reached on M - F (8:30 - 5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo Boudreau can be reached on (703) 305-4706. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CLL



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